Complete Summary

GUIDELINE TITLE

Burns.

BIBLIOGRAPHIC SOURCE(S)

Work Loss Data Institute. Burns. Corpus Christi (TX): Work Loss Data Institute; 2008. 43 p. [60 references]

GUIDELINE STATUS

This is the current release of the guideline.

This guideline updates a previous version: Work Loss Data Institute. Burns. Corpus Christi (TX): Work Loss Data Institute; 2007 Apr 27. 43 p.

The *Official Disability Guidelines* product line, including *ODG Treatment in Workers Comp*, is updated annually, as it has been since the first release in 1996.

COMPLETE SUMMARY CONTENT

SCOPE

DISEASE/CONDITION(S)

Work-related burns

GUIDELINE CATEGORY

Diagnosis
Evaluation
Management
Treatment

CLINICAL SPECIALTY

Dermatology
Family Practice
Internal Medicine

INTENDED USERS

Advanced Practice Nurses
Health Care Providers
Health Plans
Nurses
Physician Assistants
Physicians

GUIDELINE OBJECTIVE(S)

- To offer evidence-based step-by-step decision protocols for the assessment and treatment of workers' compensation conditions
- To assist the practicing physician in reaching a correct diagnosis and to outline accepted therapies for the injury

TARGET POPULATION

Workers with occupational minor burns

INTERVENTIONS AND PRACTICES CONSIDERED

The following interventions/procedures were considered and recommended as indicated in the original guideline document:

1. 2400 mOsm solutions (hypertonic 7.5% NaCl 6% dextran [HSD])
2. Acticoat
3. Activity restrictions/Work modifications
4. Apligraf® (Graftskin)
5. Benzodiazepines
6. Citalopram
7. Cooling with ice or cold water
8. Early tangential excision (and skin grafting)
9. Enteral feeding
10. Euglycemic hyperinsulinemia
11. Flucloxacillin
12. High frequency percussive ventilation (HFPV)
13. Human allogeneic epidermal sheets
14. Hypnosis
15. Insulin, with or without glucose
16. Itch control (combination of cetirizine and cimetidine)
17. Massage therapy with cocoa butter
18. Moist exposed burn ointment (MEBO)
19. Music therapy
20. Occupational/physical therapy

21. Oxandrolone
22. Propranolol
23. Recombinant bovine basic fibroblast growth factor (rbFGF)
24. Topical silver sulfadiazine combined with cerium nitrate
25. Skin grafts
26. Sucralfate cream
27. Teicoplanin
28. Topical corticosteroid treatments
29. Topical local anesthesia
30. Tourniquet use
31. TransCyte
32. Trimethoprim-sulfamethoxazole (TMP-SMX)

The following interventions/procedures are under study and are not specifically recommended:

1. Burn size calculations
2. Early tracheostomy (ET)
3. Honey dressing
4. Hyperbaric oxygen therapy
5. Psychological debriefing (PD)
6. Relaxation techniques
7. Therapeutic touch

The following interventions/procedures were considered but are not recommended:

1. Dexamethasone
2. Growth hormone
3. Immune-enhancing diet (IEDs)
4. Interferon-gamma-1b (IFN-gamma)
5. Lignocaine - prilocaine (EMLA) cream
6. Potato peel
7. Therapeutic ultrasound

MAJOR OUTCOMES CONSIDERED

Effectiveness of treatments in relieving pain, controlling infection, and wound healing

METHODOLOGY

METHODS USED TO COLLECT/SELECT EVIDENCE

Hand-searches of Published Literature (Primary Sources)
Searches of Electronic Databases

DESCRIPTION OF METHODS USED TO COLLECT/SELECT THE EVIDENCE

Work Loss Data Institute (WLDI) conducted a comprehensive medical literature review (now ongoing) with preference given to high quality systematic reviews,

meta-analyses, and clinical trials published since 1993, plus existing nationally recognized treatment guidelines from the leading specialty societies. WLDI primarily searched MEDLINE and the Cochrane Library. In addition, WLDI also reviewed other relevant treatment guidelines, including those in the National Guideline Clearinghouse, as well as state guidelines and proprietary guidelines maintained in the WLDI guideline library. These guidelines were also used to suggest references or search terms that may otherwise have been missed. In addition, WLDI also searched other databases, including MD Consult, eMedicine, CINAHL, and conference proceedings in occupational health (i.e., American College of Occupational and Environmental Medicine [ACOEM]) and disability evaluation (i.e., American Academy of Disability Evaluating Physicians [AADEP], American Board of Independent Medical Examiners [ABIME]). Search terms and questions were diagnosis, treatment, symptom, sign, and/or body-part driven, generated based on new or previously indexed existing evidence, treatment parameters and experience.

In searching the medical literature, answers to the following questions were sought: (1) If the diagnostic criteria for a given condition have changed since 1993, what are the new diagnostic criteria? (2) What occupational exposures or activities are associated causally with the condition? (3) What are the most effective methods and approaches for the early identification and diagnosis of the condition? (4) What historical information, clinical examination findings or ancillary test results (such as laboratory or x-ray studies) are of value in determining whether a condition was caused by the patient's employment? (5) What are the most effective methods and approaches for treating the condition? (6) What are the specific indications, if any, for surgery as a means of treating the condition? (7) What are the relative benefits and harms of the various surgical and non-surgical interventions that may be used to treat the condition? (8) What is the relationship, if any, between a patient's age, gender, socioeconomic status and/or racial or ethnic grouping and specific treatment outcomes for the condition? (9) What instruments or techniques, if any, accurately assess functional limitations in an individual with the condition? (10) What is the natural history of the disorder? (11) Prior to treatment, what are the typical functional limitations for an individual with the condition? (12) Following treatment, what are the typical functional limitations for an individual with the condition? (13) Following treatment, what are the most cost-effective methods for preventing the recurrence of signs or symptoms of the condition, and how does this vary depending upon patient-specific matters such as underlying health problems?

More information about the selection of evidence is available in "Appendix. ODG Treatment in Workers' Comp. Methodology description using the AGREE instrument" (see "Availability of Companion Documents" field).

NUMBER OF SOURCE DOCUMENTS

Not stated

METHODS USED TO ASSESS THE QUALITY AND STRENGTH OF THE EVIDENCE

Weighting According to a Rating Scheme (Scheme Given)

RATING SCHEME FOR THE STRENGTH OF THE EVIDENCE

Ranking by Type of Evidence

1. Systematic Review/Meta-Analysis
2. Controlled Trial–Randomized (RCT) or Controlled
3. Cohort Study–Prospective or Retrospective
4. Case Control Series
5. Unstructured Review
6. Nationally Recognized Treatment Guideline (from www.guideline.gov)
7. State Treatment Guideline
8. Other Treatment Guideline
9. Textbook
10. Conference Proceedings/Presentation Slides

Ranking by Quality within Type of Evidence

a. High Quality
b. Medium Quality
c. Low Quality

METHODS USED TO ANALYZE THE EVIDENCE

Systematic Review

DESCRIPTION OF THE METHODS USED TO ANALYZE THE EVIDENCE

The Work Loss Data Institute (WLDI) reviewed each article that was relevant to answering the question at issue, with priority given to those that met the following criteria: (1) The article was written in the English language, and the article had any of the following attributes: (2) It was a systematic review of the relevant medical literature, or (3) The article reported a controlled trial – randomized or controlled, or (4) The article reported a cohort study, whether prospective or retrospective, or (5) The article reported a case control series involving at least 10 subjects, in which the assessment of outcome was determined by a person or entity independent from the persons or institution that performed the intervention the outcome of which is being assessed.

Especially when articles on a specific topic that met the above criteria were limited in number and quality, WLDI also reviewed other articles that did not meet the above criteria, but all the evidence provided was ranked alphanumerically (see the Rating Scheme of the Strength of Evidence field) so that the quality of evidence could be clearly determined when making decisions about what to recommend in the Guidelines. Articles with a Ranking by Type of Evidence of Case Reports and Case Series were not used in the evidence base for the Guidelines. These articles were not included because of their low quality (i.e., they tend to be anecdotal descriptions of what happened with no attempt to control for variables that might affect outcome). Not all the evidence provided by WLDI was eventually listed in the bibliography of the published Guidelines. Only the higher quality references were listed. The criteria for inclusion was a final ranking of 1a to 4b (the original

inclusion criteria suggested the methodology subgroup), or if the Ranking by Type of Evidence was 5 to 10, the quality ranking should be an "a".

METHODS USED TO FORMULATE THE RECOMMENDATIONS

Not stated

RATING SCHEME FOR THE STRENGTH OF THE RECOMMENDATIONS

Not applicable

COST ANALYSIS

A formal cost analysis was not performed and published cost analyses were not reviewed.

METHOD OF GUIDELINE VALIDATION

External Peer Review

DESCRIPTION OF METHOD OF GUIDELINE VALIDATION

Prior to publication, select organizations and individuals making up a cross-section of medical specialties and typical end-users externally reviewed the guideline.

RECOMMENDATIONS

MAJOR RECOMMENDATIONS

Introduction

This guideline focuses on the adult patient of working-age. The evaluation will vary depending upon the severity and chronic nature of the problem and on the difficulty of reaching a diagnosis. Burns are common in the industrial setting. They are generally classified into minor, moderate, and major. Fortunately, major burns make up only 5% to 7% of all burns. However, as they do require treatment in a burn center, only their initial therapy will be discussed in these guidelines. The physician should verify that the injury is occupational in order to avoid conflicts over whether the claim should be filed as an occupational claim or as an indemnity claim covered under health insurance.

The purpose of this guideline is to assist the practicing physician in reaching a correct diagnosis and to outline accepted therapies for the injury. The guideline is designed to enhance the physician's decision-making process.

Initial Evaluation and Presumptive Diagnosis for Burn Injuries

Prior to any treatment or therapy, an initial evaluation gathering history and information about the injury and the patient must be performed to assess the nature of the injury. The injury should then be classified into a presumptive

diagnosis, which will dictate the path of care that should be followed. After a complete definitive evaluation is finished, the injury may, in some cases, need to be reclassified.

A. **Initial Evaluation**
    - Determine the causative agent (flame, hot liquid, hot tar, chemicals, irradiation, sun, or electrical equipment).
        - In cases of electrical burns, the extent of the injury correlates with the voltage of the electrical shock. Therefore, it is valuable to ascertain this information whenever possible.
        - With electrical burns, the cardiac status of the patient must be assessed for cardiac injury or arrhythmia, which is relatively common.
    - Assess the extent and depth of the burn, and the site of burn.
    - Determine the "degree" of the burn. See definition of "degree" below.
    - Make a general assessment of the patient's status including pulse, respiration rate, any difficulty breathing, evidence of shock, and a review of fluid needs.
    - Grade the patient's pain on a scale of 0-1-2-3-4-5, with 0 being no pain and 5 being high pain. (Or, a 0-10 scale may be used.)
    - Identify any associated fractures or other major trauma.
    - Determine any present medication.
    - Determine the patient's immunity status for tetanus.
    - Determine any previous medical history, history of systemic disease, or previous burn injury or disability.

B. **Presumptive Diagnosis** (see original guideline document for International Classification of Diseases, Ninth Revision [ICD-9] codes for minor, moderate, major, and special [chemical, electrical, burns of difficult sites,(e.g., eye burns), circumferential, and inhalation]).

Minor Burns (other burns justify immediate referral to a burn specialist. Consider referral of major burn victims to one of the major burn centers in the United States: http://www.ameriburn.org/verification_verifiedcenters.php)

A. **Definitive Diagnosis Completed**
B. **Initial Therapy**
    - Manage the burn area with sterile technique as the major complication of a burn is infection. Prevention of infection is a major goal of therapy.
    - Cleanse gently to remove any foreign matter.
    - Apply a sterile cold or ice saline compress to the burn area for up to 20 minutes. Avoid direct contact of ice to the skin.
    - Under sterile conditions, apply a webbed medicated gauze to the burn area and cover with a bulky loose webbed bandage dressing.
    - Give tetanus toxoid when appropriate.
    - Prescribe analgesics. Initially give by injection, if necessary, to assist in the cleansing and dressing of the burn. Then give orally for three to five days.
    - Redress under sterile conditions with a webbed medicated gauze dressing every three to five days until healed.

- The routine use of oral antibiotics is not necessary or proven to reduce the incidence of serious infection or hasten healing. However, if there is evidence of infection, prescribe oral broad-spectrum antibiotics.
- Many minor burns are completely healed in less than 10 days.
- Consultation or referral to a burn specialist is appropriate for patients with third degree burns because most require grafting.
- Estimate a return-to-work date for temporary transitional and regular work at each visit.
- Prescribe level of activity at work and job modifications at each visit.

C. **Secondary Evaluation for Patients with Minimal Improvement after 7-10 Days of Therapy**
   - If the burn is not healing well by this time, perform a careful evaluation for infection, vascular compromise, diabetes, and other systemic factors, which may delay healing.
   - Review history to make sure that the patient is complying with the prescribed care of the burn.
   - Review for superimposed infection.
   - Redress the burn if any signs of infection exist, prescribe antibiotics, and immobilize the injured part.
   - Re-evaluate every three to four days. If healing does not progress by 7 to 10 days, refer to a specialist.

Official Disability Guidelines (ODG) Return-To-Work Pathways - Burn of Face, Head, and Neck

First degree: 0 days

Second degree: <3 square inches: 0 days

Second degree: ≥3 square inches: 10 days

Third degree: <3 square inches: 21 days

Third degree: ≥3 square inches: 28 days

Third degree: >30 square inches (1% body surface area [BSA]), modified work: 56 days

Third degree: >30 square inches (1% BSA), regular work: 70 days

ODG Return-To-Work Pathways - Burn of Trunk

First degree: 0 days

Second degree: <3 square inches: 0 days

Second degree: ≥3 square inches: 10 days

Third degree: <3 square inches, clerical/modified work: 21 days

Third degree: ≥3 square inches, clerical/modified work: 28 days

Third degree: >30 square inches, clerical/modified work: 56 days

Third degree: <3 square inches, manual work: 21 days

Third degree: ≥3 square inches, manual work: 35 days

Third degree: >30 square inches, manual work: 70 days

ODG Return-To-Work Pathways - Burn of Limb

First degree: 0 days

Second degree: <3 square inches: 0 days

Second degree: ≥3 square inches: 10 days

Third degree: <3 square inches: 14 days

Third degree: ≥3 square inches: 28 days

Third degree: >30 square inches, modified work: 56 days

Third degree: >30 square inches, regular work: 70 days

ODG Return-To-Work Pathways - Burn of Multiple Sites

First degree: 0 days

Second degree: <3 square inches: 0 days

Second degree: ≥3 square inches: 14 days

Third degree: <3 square inches: 21 days

Third degree: ≥3 square inches: 35 days

Third degree: >30 square inches, modified work: 70 days

Third degree: >30 square inches, regular work: 84 days

(See *ODG Capabilities & Activity Modifications for Restricted Work* under "Work" in the Procedure Summary of the original guideline document)

Definition: There are three levels of burns:

First-degree burns affect only the outer layer of the skin. They cause pain, redness, and swelling.

Second-degree burns affect both the outer and underlying layer of skin. They cause pain, redness, swelling, and blistering.

Third-degree burns extend into deeper tissues. They cause white or blackened, charred skin that may be numb.

CLINICAL ALGORITHM(S)

None provided

EVIDENCE SUPPORTING THE RECOMMENDATIONS

TYPE OF EVIDENCE SUPPORTING THE RECOMMENDATIONS

During the comprehensive medical literature review, preference was given to high quality systematic reviews, meta-analyses, and clinical trials over the past ten years, plus existing nationally recognized treatment guidelines from the leading specialty societies.

The heart of each Work Loss Data Institute guideline is the Procedure Summary (see the original guideline document or the National Guideline Clearinghouse summary list provided in the "Interventions and Practices Considered" field), which provides a concise synopsis of effectiveness, if any, of each treatment method based on existing medical evidence. Each summary and subsequent recommendation is hyper-linked into the studies on which they are based, in abstract form, which have been ranked, highlighted and indexed.

BENEFITS/HARMS OF IMPLEMENTING THE GUIDELINE RECOMMENDATIONS

POTENTIAL BENEFITS

These guidelines unite evidence-based protocols for medical treatment with normative expectations for disability duration. They also bridge the interests of the many professional groups involved in diagnosing and treating work-related burns.

POTENTIAL HARMS

Not stated

IMPLEMENTATION OF THE GUIDELINE

DESCRIPTION OF IMPLEMENTATION STRATEGY

An implementation strategy was not provided.

IMPLEMENTATION TOOLS

Patient Resources

For information about availability, see the "Availability of Companion Documents" and "Patient Resources" fields below.

INSTITUTE OF MEDICINE (IOM) NATIONAL HEALTHCARE QUALITY REPORT CATEGORIES

IOM CARE NEED

Getting Better

IOM DOMAIN

Effectiveness
Patient-centeredness

IDENTIFYING INFORMATION AND AVAILABILITY

BIBLIOGRAPHIC SOURCE(S)

Work Loss Data Institute. Burns. Corpus Christi (TX): Work Loss Data Institute; 2008. 43 p. [60 references]

ADAPTATION

Not applicable: The guideline was not adapted from another source.

DATE RELEASED

2004 (revised 2008 Jan 2)

GUIDELINE DEVELOPER(S)

Work Loss Data Institute - Public For Profit Organization

SOURCE(S) OF FUNDING

Not stated

GUIDELINE COMMITTEE

Not stated

COMPOSITION OF GROUP THAT AUTHORED THE GUIDELINE

Editor-in-Chief, Philip L. Denniston, Jr. and Senior Medical Editor, Charles W. Kennedy, Jr., MD, together pilot the group of approximately 80 members. See the ODG *Treatment in Workers Comp* Editorial Advisory Board.

FINANCIAL DISCLOSURES/CONFLICTS OF INTEREST

There are no conflicts of interest among the guideline development members.

GUIDELINE STATUS

This is the current release of the guideline.

This guideline updates a previous version: Work Loss Data Institute. Burns. Corpus Christi (TX): Work Loss Data Institute; 2007 Apr 27. 43 p.

The *Official Disability Guidelines* product line, including *ODG Treatment in Workers Comp*, is updated annually, as it has been since the first release in 1996.

GUIDELINE AVAILABILITY

Electronic copies: Available to subscribers from the Work Loss Data Institute Web site.

Print copies: Available from the Work Loss Data Institute, 169 Saxony Road, Suite 210, Encinitas, CA 92024; Phone: 800-488-5548, 760-753-9992, Fax: 760-753-9995; www.worklossdata.com.

AVAILABILITY OF COMPANION DOCUMENTS

The following are available:

- Background information on the development of the Official Disability Guidelines (ODG) of the Work Loss Data Institute is available from the Work Loss Data Institute Web site.
- Appendix A. ODG Treatment in Workers' Comp. Methodology description using the AGREE instrument. Available to subscribers from the Work Loss Data Institute Web site.

PATIENT RESOURCES

The following is available:

- Appendix C. Official Disability Guidelines (ODG) Treatment in Workers' Comp. Patient information resources. 2008.

Electronic copies: Available to subscribers from the Work Loss Data Institute Web site.

Print copies: Available from the Work Loss Data Institute, 169 Saxony Road, Suite 210, Encinitas, CA 92024; Phone: 800-488-5548, 760-753-9992, Fax: 760-753-9995; www.worklossdata.com.

Please note: This patient information is intended to provide health professionals with information to share with their patients to help them better understand their health and their diagnosed disorders. By providing access to this patient information, it is not the intention of NGC to provide specific medical advice for particular patients. Rather we urge patients and their representatives to review this material and then to consult with a licensed health professional for evaluation of treatment options suitable for them as well as for diagnosis and answers to their personal medical questions. This patient information has been derived and prepared from a guideline for health care professionals included on NGC by the authors or publishers of that original guideline. The patient information is not reviewed by NGC to establish whether or not it accurately reflects the original guideline's content.

NGC STATUS

This NGC summary was completed by ECRI on April 4, 2005. This NGC summary was updated by ECRI on January 18, 2006, November 8, 2006, March 28, 2007, and August 16, 2007. This summary was updated by ECRI Institute on October 31, 2007, following the U.S. Food and Drug Administration advisory on Antidepressant drugs. This summary was updated by ECRI Institute on November 20, 2008.

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